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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/602,294	06/23/2003	Venkat Selvamanickam	SPP 18.815	1196
26304	7590	04/28/2006	EXAMINER	
KATTEN MUCHIN ROSENMAN LLP			MOORE, KARLA A	
575 MADISON AVENUE			ART UNIT	
NEW YORK, NY 10022-2585			PAPER NUMBER	

1763

DATE MAILED: 04/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/602,294

Applicant(s)

SELVAMANICKAM ET AL.

Examiner

Karla Moore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 February 2006.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-5, 7-9 and 22-24 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 2-5, 7-9 and 22-24 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 23 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Claim Objections*

1. Claims 2-5, 7-9 and 22-24 are objected to because of the following informalities: "PLD" and "HTS" should be spelled out, at least the first time they appear in the claim, in order to clearly express Applicant's claimed invention. Appropriate correction is required.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims 2, 4-5 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over European Patent Application No. 1 143 532 A1 to Usoskin et al. in view of U.S. Patent No. 5,760,366 to Haruta et al.
5. Usoskin et al. disclose a multi-chamber vacuum coating apparatus for coating a substrate tape (Figure 1, 1) utilizing pulsed laser deposition (PLD) and a reel to reel tape transport system comprising a payout spool chamber (not numbered, top narrow portion of apparatus) containing at least one spool of uncoated substrate tape; one or more deposition chambers (not numbered, middle wider portion of apparatus); a take-up spool chamber (not numbered, bottom narrow portion of apparatus) capable of

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accommodating at least one spool of coated substrate tape; wherein the one or more deposition chambers comprises a substrate heater (9), a motorized target manipulator (14) where the target manipulator imparts rotary and oscillatory motion to the multiple the target (page 3, rows 26-28), the target comprising high temperature superconductor (HTS) material; the payout chamber and the depositing chamber both having an opening therein of sufficient dimension to permit at least one translating tape to be inserted therethrough; the deposition chamber and the take-up spool chamber both having an opening therein of sufficient dimension to permit at least one substrate tape to be inserted therethrough; the one or more deposition chambers each have the substrate heater and the target manipulator disposed therein such that the heater and the at least one target manipulator define and extended deposition zone therebetween; and the exterior wall of the apparatus contains openings for at least one laser beam (15, 17), wherein the target is positioned to create a plume (19) along the extended deposition zone.

6. However, Usoskin et al. fail to teach a multiple targets arranged linearly along the target manipulator, the targets including first and second targets comprising said HTS material positioned to create multiple overlapping plumes along the extended deposition zone.

7. Haruta et al. teach the use of a plurality of targets and a plurality of lasers for producing a plurality of overlapping plumes of deposition material for the purpose of increasing the deposition rate, enabling uniform formation over a wider area and improving throughput (Figures 51, 58 and 57 for example; column 14, rows 7-10; column 47, rows 23-24; column 52, rows 54-58).

8. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a plurality of targets and/or a plurality of lasers for producing a plurality of overlapping plumes in Usoskin et al. in order to increase the deposition rate, enable uniform formation over a wider area and improve throughout as taught by Haruta et al.

9. With respect to claim 2, there is one deposition chamber in Usoskin et al.

10. With respect to claim 4, Haruta et al teach the exterior wall of the apparatus contains openings for multiple laser beams. See Figures 51, 58 and 77.

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11. With respect to claim 5, Haruta et al. discloses multiple targets mounted on the manipulator (see Figures 51, 58 and 77).

12. With respect to claim 23, Haruta et al. teach that increasing the number of targets increases the deposition rate, enables uniform formation over a wider areas and improves throughput. It would have been obvious to one of ordinary skill in the art to add targets onto the apparatus for increased optimization of processing. Further, the courts have ruled that the mere duplication of parts has no patentable significance unless a new and unexpected result is produced. In re Harza, 274 F.2d 669, 124 USPQ 378 (CCPA 1960).

13. With respect to claim 24, the HTS material in Usoskin et al. comprises yttrium-barium-copper-oxide (page 2, rows 18 and 19).

14. Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Usoskin et al. and Haruta et al. as applied to claims 2, 4-5 and 22-24 and further in view of U.S. Patent No. 4,389,970 to Edgerton.

15. Usoskin et al. and Haruta et al. disclose the invention substantially as claimed and as described above.

16. However, Usoskin et al. and Haruta et al. fail to teach the heater is a multi-zone heater.

17. Edgerton teaches the use of a multi-zone heater for raising and maintaining a continuous substrate at a predetermined deposition temperature, wherein the heaters/lamps are spaced apart along the length of travel to provide a desired heating profile (abstract). There are at least three zones created by heaters/lamps (see Figure 3A, 106).

18. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a multi-zone heater in Usoskin et al. and Haruta et al. in order to raise and maintain the continuous substrate at a predetermined deposition temperature using heaters/lamps that are spaced apart along the length of travel to provide a desired heating profile as taught by Edgerton.

19. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usoskin et al. and Haruta et al. as applied to claims 2, 4-5 and 22-24 and further in view of U.S. Patent 5,196,100 to Goffetre et al.

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20. Usoskin et al. and Haruta et al. disclose the invention substantially as claimed and as described above.

21. However, Usoskin et al. and Haruta et al. fail to disclose the spool chambers sized to accommodate from about 2 to about 20 spools of substrate tape.

22. Goffetre et al. teach the use of a spooling chamber able to accommodate a number of spools so that they can be spooled out of the chamber together using a single spindle, deposited on in a single deposition chamber and subsequently received in a take-up chamber together on a single spindle (column 2, row 59 through column 3, row 10).

23. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a spooling chamber capable of accommodating from about 2 to about 20 spools in Usoskin et al. and Haruta et al. in order to process substrates on a number of spools together as taught by Goffetre et al.

24. Examiner also notes that in *In re Rose*, 220 F.2d 459, 105 USPQ 237 (CCPA 1955) (Claims directed to a lumber package "of appreciable size and weight requiring handling by a lift truck" where held unpatentable over prior art lumber packages which could be lifted by hand because limitations relating to the size of the package were not sufficient to patentably distinguish over the prior art.); *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976) ("mere scaling up of a prior art process capable of being scaled up, if such were the case, would not establish patentability in a claim to an old process so scaled." 531 F.2d at 1053, 189 USPQ at 148.). Also, in *In Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), the Federal Circuit held that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

25. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Usoskin et al. and Haruta et al. as applied to claims 2, 4-5 and 22-24 and further in view of U.S. Patent No. 5,151,303 to Hales et al.

26. Usoskin et al. and Haruta et al. disclose the invention substantially as claimed and as described above.

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27. However, Usoskin et al. and Haruta et al. fail to teach the vacuum coating apparatus as a multi-chamber coating apparatus comprising a payout spool chamber containing at least one spool of uncoated substrate tape, a take-up spool chamber capable of accommodating at least one spool of coated substrate tape and the payout chamber, deposition chamber and take-up chamber each having an opening therein of sufficient dimension to permit at least one tape substrate to be inserted therethrough.

28. Hales et al. teach the use of a multi-chamber deposition apparatus in Figure 1, comprising a payout chamber (10b), multiple deposition chambers and a take-up chamber (10c), wherein each chamber has openings (29) to permit the insertion of a tape substrate therethrough for the purpose of reducing outgassing that occurs in the processing chamber by evacuating the pay-out and take-up chamber separately from the processing chamber over time, also the apparatus allows for changing the coils/spools easily without loss of vacuum and storage of a processed substrate in a protected environment until shipped or further processed (column 2, rows 18-21 and 40-44). Hales et al. also teach the use of seals (column 2, rows 21-23) in the openings in the chamber walls for the purpose of maintaining a selected pressure differential between the different chambers.

29. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a multi-chamber apparatus with connected payout chamber, take-up chamber and deposition chambers such as Usoskin et al. with seals in the openings of the chamber walls in order to maintain a selected pressure differential between the different chambers as taught by Hales et al.

### ***Conclusion***

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action

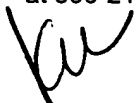
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is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 9:00 am-6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571.272.1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Karla Moore  
Primary Examiner  
Art Unit 1763  
26 April 2006